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ABSTRACT

This study investigated the level of accumulation of community college credits up to the point at which students transfer into public, four-year institutions. A sample survey was done of public, four-year institutions, asking them to report the credit accumulations of its incoming transfer students. A group of 50 institutions were selected to participate. A successful pilot test using 13 of these institutions tested the study instruments and study feasibility. The full study invited all 50 institutions to participate with 30 institutions agreeing. The institutions provided data on credits earned, credits accepted, and degrees earned overall, and by race/ethnicity and gender. These institutions reported on more than 15,000 students. Findings revealed the following: (1) the number of credits earned and the number of credits accepted are related to student race/ethnicity; (2) male and female students transfer from community colleges after they have earned an average of 62-63 credits; (3) black, non-Hispanic students are more likely to transfer with fewer credits than other student groups; (4) females at non-doctoral institutions are more likely than males to earn a degree; and (5) black, non-Hispanic and Hispanic students represented larger proportions of the non-doctoral institution transfer cohort than they do of the doctoral institution transfer cohort. An appendix lists participating institutions, the study instruments, and supplemental tables. (JB)

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The Transfer Point

A Study Report
Prepared by:
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under contract to the American Council on Education
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The Transfer Point
Who Transfers and When Do They Do It?

Background and Purpose of the Study

This study was undertaken to investigate one aspect of the transfer phenomenon, the accumulation of community college credits up to the point at which students transfer into public, four-year institutions. This point is hereafter referred to as the "transfer point." We were specifically concerned with discovering the variation among student groups as to the typical number of credits accumulated by the point of transfer and also the proportion of students who earned fewer or more than the typical number. Therefore, we sought a cohort of students, narrowly defined, for whom we could determine patterns as to point of transfer.

This accumulation of credits at the point of transfer may or may not coincide with the earning of an associate's degree, therefore patterns among student groups of earning a degree up to the transfer point were also studied. Further, a student is usually identified as a "transfer" by the institution accepting that student for admission and some or all of his/her earned credits. However, all credits earned are not necessarily accepted. Therefore, the study also sought an understanding of the variation in the number of credits accepted among student groups.

These particular focuses of the study came from the understanding that considerable research to date on the characteristics of transfer students and the magnitude of transfer has produced conflicting findings due to inconsistencies in definitions and methodological approaches. Some researchers have looked forward to see what proportion of community college students transfer. Others have looked backward to estimate the proportion of baccalaureate degree recipients who benefitted from community college education.

State analyses offer varying estimates of the rate of transfer. Research has also provided clues as to the correlates of transfer, including student characteristics and factors likely to predict transfer, such as academic background and academic aspirations. Two consortia of institutions currently exist which are attempting, for their members, to develop a consistent transfer rate and set data standards allowing trend studies. Much of this research is reported in the Working Papers of the National Center for Academic Achievement and Transfer and in the monograph Setting the National Agenda: Academic Achievement and Transfer (Research: What do We Know about Transfer?) by James Palmer. We hoped that our study emphasis would fit within this research tradition and that the findings would add to the current knowledge as well as raise questions related to future research.

We identified three themes within the research literature which seemed to be relevant to our own study: research on the meaning of the associate degree and the accumulation of credits towards the degree; research on the relationship between the structure of public higher education and the transfer phenomenon; and research on the characteristics and life circumstances of transfer students.

Research has found that an associate degree is not a prerequisite for transfer, nor is this credential the educational goal of all students in community colleges who aspire to a baccalaureate degree. We also know that differing amounts of credits are earned prior to transfer and that not all of these credits are academically transferred to the receiving institution. Similarly, some students leave the community college earlier (with fewer credits earned than would be expected for an associate's degree) or later (with many more credits earned than would be expected for a degree). However, why they leave when they do is largely unknown.

Many of the factors influential in the transfer phenomenon are related to the configuration of public higher education within a state. Articulation agreements may influence the point of transfer, for example. The distribution of degree programs among the publicly assisted doctoral, comprehensive, and liberal arts colleges and universities reflect policy decisions about the movement of students through the system and are likely to influence the choice of transfer institution as well as the point of transfer.

Finally, research has shown that the influence of life circumstances, such as job, family responsibilities, and availability of information about college opportunity may affect the point of transfer. Differences between transfer students and other student populations (peers in community colleges or native students in four-year institutions) may not be as distinct as many think. Some of these intervening circumstances may be influencing student patterns of higher education participation, with the result that the same students who enter a community college and then transfer may have been just as likely to attend a four-year institution.

At the outset, we acknowledged that the point of transfer is probably a result of a combination of these factors. We knew we would not have direct access to individual student record information, therefore, instead of trying to determine the extent to which any one or a combination of these factors was influencing the point of transfer, we concentrated on investigating the following four questions:

a) At what point in their academic careers do community college students transfer to four-year institutions? That is, how many units do community college students complete before transferring?

b) How many of the credits earned by these students at the community college are accepted for transfer by the four-year institution?

c) What proportion of these transfer students hold an associate degree from the community college?

d) Do these behaviors and phenomena vary by gender and/or by ethnicity?

As we began to examine the data, however, we realized that questions about the characteristics of transfer students and the choice of institution should also be pursued. Since

research existed (Adelman, Palmer, Paul) about these issues, giving us some indication of direction, we decided to add two research questions to the framework of our study. These are reflected in the hypotheses as well.

e) How alike are transfer students to their peers enrolled in the community colleges in the participating study states and to the first-time freshmen (native students) in the public, four-year institutions participating in the sample?

f) What relationship does the level (doctoral or non-doctoral) of transfer institution have to the point of transfer, to patterns of degree attainment and of credit acceptance among student groups?

The answers to these six questions, we believe, have implications for those educators and policymakers considering the role of the community college in the production of the baccalaureate graduate, the meaning of the associate degree, and the perceptions held about transfer students in comparison to their peers at both community colleges and at four-year institutions.

Methodology

Design

To answer the research questions, a two-stage study design was conceived. A pilot test of the data collection instruments and procedures was undertaken to assess the study feasibility and the practical application of the data collection forms. A full study, with many more participating institutions, was designed to follow and to focus on the collection of data on enough transfer students to test for significant differences among student groups. For both the pilot and the full study, the decision was made to look at a snapshot of students who could be identified as transfers by the receiving institutions. A longitudinal study was not considered feasible, given current resources. With this snapshot approach we could include any student who attended a community college prior to entering a four-year institution, regardless of how recent this experience was. Also, the focus was on pinning down the point of entry, not on documenting all the other experiences which came before or occurred after transfer.

Description of the Participating Sample

The first step in selecting institutions for participation was the identification of the thirteen states with the greatest enrollment in the community college sector, representing 75 percent of the community college enrollments nationwide. (Note: Virginia was among the top ten states on this characteristic, but was already part of a similar and separate study, therefore, we did not include it among our thirteen.)

These thirteen states represented two hundred and ten public, four-year institutions, including research, doctoral, comprehensive, and liberal arts institutions (specialized institutions were excluded from this study). For analysis and sampling stratification purposes, the research and doctoral institutions were grouped as "doctoral" institutions and the comprehensive and liberal arts institutions were grouped as "non-doctoral" institutions. Fifty institutions were chosen by stratified random sampling based on institution type (doctoral and non-doctoral). The pilot study was administered to thirteen institutions from the sample of 50, with one institution selected from each state represented by the 50 original sample institutions. We included doctoral and non-doctoral institutions for the pilot study, and ensured that we had representation from both institutions with large enrollment and institutions with relatively small enrollment.

The pilot study proved successful in both the development of the methodology for data collection and the identification of differences among groups of transfer students which seemed important. However, the small size of the student cohort and the use of student samples by some of the institutions in the pilot test rendered the pilot data too incomplete to provide statistically significant findings. It was determined that providing statistically significant findings on a large sample could be meaningful for educators working with transfer programs or on research about transfer.

The full study was launched by sending an invitation letter to 50 presidents/chancellors requesting their participation and the return of a response form designating a contact. A total of 30 institutions completed the data collection and reporting tasks for the study. This included 26 institutions from the original sample of 50 (four of whom had been participants in the pilot study) and four replacement institutions for those colleges and universities which declined to participate. Replacements were chosen by selecting within the same institution type, then the same state, and then with the enrollment that most resembled the declining institution. These institutions provided data on credits earned, credits accepted, and degrees earned overall, and by race/ethnicity within gender, for a cohort of students who transferred into their institution in the fall of 1991. In total, these 30 institutions reported on more than 15,000 students. Participants in the pilot study and in the full study each received $500 for their data collection efforts.

The members of the pilot study were told that their data would be included in the full study and they completed all steps in collection and reporting. However, of the seven institutions that agreed to provide data, two institutions were not able to report on a full cohort and one could not provide all data elements. Based on preliminary differences found in the pilot study a decision was made to collect and display the data on credits by gender within race/ethnic group for the full study. The pilot institutions were asked if this could be done and four were able to complete the next stage of the study. When their work for the full study was completed, the pilot study institutions each received a $200 honorarium (in addition to the $500 already received) for their extra work.

All of the thirteen states that were identified at the outset of the study as having substantial community college enrollments were represented in the final group of participating institutions, however, even representation of doctoral and non-doctoral institutions was not available for each state.

Data Collection and Analysis

Criteria for Selection of Transfer Cohort

The institutions were asked to identify a cohort of students who transferred into their institution in the fall of 1991. Criteria for identifying the transfer cohort were as follows:

a) entered the institution for the first time in the fall of 1991,

b) whose records indicate that the last college attended was a public community, technical, or junior college within the state in which the four-year institution was located,

c) who transferred at least one credit from a two-year public college into the four-year institution, and

d) who did not transfer into the four-year institution any credits from another four-year institution.

These criteria were based on the experience of other researchers (Palmer, Cohen) as to what constitutes a transfer student. At the same time, the criteria differed from the research in at least three important ways. Restricting the cohort to the community colleges in the same state narrowed the cohort group, while lowering the minimum number of credits transferred to at least one broadened the cohort. In addition, we did not specify that the cohort of transfers were to have been those students who began their studies at a community college (although we did require that the cohort not include students who transferred any four-year college credits).

Procedures for Data Collection

Participating institutions provided data on credits earned, credits accepted, and degrees earned overall, and by race/ethnicity and gender, for a cohort of students who transferred into their institution in the fall of 1991 using a set of detailed procedures which had been tested during the pilot. The procedures describe how to identify the cohort of transfer students and how to display the data items on forms prepared for the study. Eleven forms were prepared and sent to each participating institution so that data could be distributed by race/ethnicity and by gender of the students in the transfer cohort. (Please see the appendix for a sample form and procedures.)

For those participants who did not wish to use the paper forms to compile the data on credits earned, credits accepted, and degree earned by type of student (gender and race), we offered the alternative of sending in data on diskette in a "unit record " format. Seven institutions chose to submit their data on diskette.

As can be seen on the sample form in the appendix of this report, a category "Don't Know" appeared on each matrix. There were 174 students reported by the participating institutions for whom the number of credits earned was unknown; 131 students reported for whom the number of credits accepted was unknown; and 4,078 students among the total cohort of 15,278 for whom degree earned data were reported unknown by the participating institutions. Overall, all 30 of the participating institutions were able to report on credits earned and credits accepted (except for some individual students). Three institutions were not able to report the associate degree status of any of their cohort of transfer students.

Analysis and Choice of Tests of Significance

The bulk of the statistical analyses was conducted on the original data collected from the thirty participating institutions. The reported data was first analyzed by calculating the median number of credits earned and accepted and the quartile distribution of students in each group. The median was thought to be the best statistic to describe the credit accumulation and transfer patterns of groups of students. To test for the significance of the differences, however, the mean was required. Therefore, this statistic of central tendency was also calculated for the samples of students. There was a small difference--2-3 points--between the median and mean.

In addition, to compare our 1991 transfer cohort with the "native" student population, we compiled data from the U.S. Department of Education, National Center for Education Statistics, IPEDS 1991 Fall Enrollment Survey. We extracted first-time freshmen (for the fall of 1991) for the institutions that participated in our study, enabling us to compare their 1991 transfer cohort and their 1991 first-time freshmen cohort. In addition we extracted community college enrollment in the thirteen states from the same IPEDS 1991 fall enrollment survey file.

Any differences mentioned as significant in this report were tested using the following procedures at an alpha level of .01 (99% level of significance):

> For hypotheses 1, 2, 3, and 5, the chi-square test of independence was used to determine whether classification by gender, by race, or by a combination of the two made a difference in results.
>
> For hypotheses 4 and 6, ANOVA was used to determine whether classification by gender, by race, or by a combination of the two resulted in a different distribution of credits earned and accepted. Please note that there is a limitation to this method using this data. Most institutions reported students with "100 credits or more" instead of the

actual number of credits, when credits earned or accepted exceeded 100. In testing, these records were given a value of "100," thus underestimating their credit accumulation.

Hypotheses

Once the data, collected using the six study questions as a framework, were available we developed and tested a number of hypotheses:

(1) There is no difference in the characteristics of students who transfer compared with those enrolled in the two-year community colleges, with regard to gender and race/ethnicity.

(2) There is no difference in the characteristics of students who transfer into doctoral institutions compared with those who transfer into non-doctoral institutions, with regard to gender and race/ethnicity.

(3) There is no difference in the characteristics of students who transfer compared with those entering the four-year colleges and universities as first-time freshmen, with regard to gender and race/ethnicity.

(4) The characteristics of the student (with regard to gender and race/ethnicity) do not make a difference in the point at which the student transfers in his/her educational career--this point being defined by the number of credits accumulated from two-year community colleges at the time of transfer.

(5) There is no difference in the percentage of students who earn an associate degree before transferring, with regard to gender and race/ethnicity.

(6) The characteristics of the student (with regard to gender and race/ethnicity) do not make a difference in the number of credits accepted by the four-year institution upon transfer.

In addition, hypotheses 3 - 6 were tested for differences by type of institution attended upon transfer: doctoral or non-doctoral.

Findings

The following findings present results from testing the six research hypotheses about differences in transfer behavior. Supplementary tables showing the distribution of data collected by quartile and by specified categories follow the sample data collection form in the appendix.

We will also discuss implications and the need for further research, as indicated by the findings in the conclusions section of the paper.

Hypothesis 1 - There is no difference in the characteristics of students who transfer compared with those enrolled in the two-year community colleges, with regard to gender and race/ethnicity.

Table 1
Selected Two-Year Enrollment and Sample Transfer Cohort, Broken Down by Gender and Race/Ethnicity

Category of Student	Fall 1991 Enrollment at Two-Year Colleges in 13 States	Fall 1991 Sample Transfer Cohort	Chi-Square	p-value
Female	57.6%	52.0%	191.4	.001
Male	42.4	48.0		
Asian/Pacific Islander	5.5	7.7	542.71	.001
Black, non-Hispanic	10.3	5.7		
Hispanic	11.0	9.1		
American Indian/Alaskan Native	1.1	0.7		
White, non-Hispanic	72.1	76.8		

Finding: Our transfer cohort differed significantly from the enrollments at the two-year colleges in the states represented in the study when broken down by gender and race/ethnicity.

Females represented a significantly smaller proportion of enrollment (52%) in the transfer cohort than in the two-year colleges (57.6%). (Table 1)

Likewise, black, non-Hispanic, Hispanic, and American Indian/Alaskan Native students had a statistically smaller representation in the transfer cohort than in the two-year college enrollments. The percentage difference appears exceptionally large for black, non-Hispanic students (10.3% of two-year enrollments, but only 5.7% of transfer students). (Table 1)

Hypothesis 2 - There is no difference in the characteristics of students who transfer into doctoral institutions compared with those who transfer into non-doctoral institutions, with regard to gender and race/ethnicity.

Table 2
Sample Transfer Cohort, Broken Down by Gender and Race/Ethnicity within Institution Type

Category of Student	Fall 1991 Sample Transfer Cohort that Transferred to a Doctoral Institution	Fall 1991 Sample Transfer Cohort that Transferred to a Non-Doctoral Institution	Chi-Square	p-value
Female	49.8%	53.6%	20.98	.001
Male	50.3	46.5		
Asian/Pacific Islander	8.0	7.4	138.71	.001
Black, non-Hispanic	4.8	6.3		
Hispanic	6.1	11.2		
American Indian/Alaskan Native	0.9	0.6		
White, non-Hispanic	80.3	74.5		

Note: Numbers may not add to 100 percent due to rounding.

Finding: When the transfer cohort was divided into two groups by type of institution (doctoral and non-doctoral), the two groups differed significantly from each other, with respect to gender and race/ethnicity.

The proportion of transfers into non-doctoral institutions that are female (53.6%) is statistically greater than the proportion of female transfers into doctoral institutions (49.8%). Conversely, the proportion of transfers into non-doctoral institutions that are male (46.5%) is statistically smaller than the proportion of male transfers into doctoral institutions (50.3%). (Table 2)

Likewise, significant differences are found when race/ethnicity is examined as a factor in transfer. Both black, non-Hispanic and Hispanic students represent larger proportions of the non-doctoral transfer cohort (6.3% and 11.2% respectively) than they do of the doctoral transfer cohort (4.8% and 6.1% respectively). (Table 2)

Hypothesis 3 - There is no difference in the characteristics of students who transfer compared with those entering the four-year colleges and universities as first-time freshmen, with regard to gender and race/ethnicity.

Table 3
Sample First-time Freshmen and Sample Transfer Cohort, Broken Down by Gender and Race/Ethnicity within Institution Type

Category of Student	1991 First-time Freshmen	1991 Transfer Cohort	Chi-Square	p-value
DOCTORAL				
Female	49.4%	49.8%	0.30	.584
Male	50.6	50.3		
Asian/Pacific Islander	10.8	8.0	141.25	.001
Black, non-Hispanic	8.3	4.8		
Hispanic	5.4	6.1		
American Indian/Alaskan Native	0.9	0.9		
White, non-Hispanic	74.7	80.3		
NON-DOCTORAL				
Female	55.3%	53.6%	8.21	.004
Male	44.7	46.5		
Asian/Pacific Islander	6.2	7.4	573.22	.001
Black, non-Hispanic	15.3	6.3		
Hispanic	13.9	11.2		
American Indian/Alaskan Native	0.4	0.6		
White, non-Hispanic	64.2	74.5		

Note: Numbers may not add to 100 percent due to rounding.

Finding: When race/ethnicity was considered, a significant difference was found in the proportion of students who transfer compared with those entering the four-year colleges and universities in our sample as first-time freshmen. A significant difference was found between the two groups when gender was considered, however, only at non-doctoral institutions.

Overall, there was no significant difference between the proportion of females in the transfer cohort and the proportion in the freshmen cohort (both about 52%). This finding also held for the doctoral category; that is, there was still no difference in the proportion of females in

the transfer cohorts and the freshmen cohorts (about 49%). However, at non-doctoral institutions, the proportion of females within the transfer cohort was significantly smaller than within the first-time freshmen cohort, and conversely for males. (Table 3)

The distribution by race/ethnicity of students in the transfer cohort differed significantly from that of the first-time freshmen at our sample institutions. However, the finding for hypothesis 2 indicates the importance of the type of institution in cohort demographics. Therefore, the transfer cohort was divided by institution type and then compared as to race/ethnicity distribution.

At public, doctoral institutions, black, non-Hispanic and Asian/Pacific Islander students each make up a statistically smaller percentage of the transfer cohort than the first-time freshmen group. Asian/Pacific Islander students made up 8.0 percent of the transfer students versus 10.8 percent of the incoming freshmen. In addition, at these same institutions, black, non-Hispanic students represented 4.8 percent of the transfer students compared to nearly 8.3 percent of the first-time freshmen. (Table 3)

At public, non-doctoral institutions the differences in black, non-Hispanic student representation were more striking. While black, non-Hispanic students made up 15.3 percent of the incoming freshmen, they represented only 6.3 percent of the transfer cohort. It should be noted, however, that there was not a statistically significant difference in the proportion of Asian/Pacific Islander students within the transfer and first-time freshmen cohorts at non-doctoral institutions. The proportion of Hispanic students among transfers was significantly different than among first-time freshmen, even though the percentage difference was not as large as for black, non-Hispanic students. Hispanic students represented 13.9 percent of the first-time freshmen, but 11.2 percent of the transfer students. (Table 3)

Hypothesis 4 - The characteristics of the student (with regard to gender and race/ethnicity) do not make a difference in the point at which the student transfers in his/her educational career--this point being defined by the number of credits accumulated from two-year community colleges at the time of transfer.

Table 4
Credits Earned by Type of Institution and Gender

	Female	Male	F-value	p-value
All institutions	(n=7,886)	(n=7,218)		
mean	59.4	58.9	2.15	.1430
std. dev.	20.8	21.6		
Non-doctoral	(n=4,855)	(n=4,155)		
mean	59.0	58.0	4.66	.0309
std. dev.	21.1	22.5		
Doctoral	(n=3,031)	(n=3,063)		
mean	60.0	60.1	0.01	.9065
std. dev.	20.3	20.3		

Table 5
Credits Earned by Type of Institution and Race/Ethnicity

	White, non-Hispanic	Black, non-Hispanic	Hispanic	Asian/ Pacific Islander	American Indian/ Alaskan Native	F-value	p-value
All institutions	(n=11,512)	(n=854)	(n=1,482)	(n=1,141)	(n=115)		
mean	58.9	54.2	60.5	63.1	63.1	24.75	.0001
std. dev.	21.0	24.5	22.5	18.0	19.1		
Non-doctoral	(n=6,662)	(n=561)	(n=1,113)	(n=654)	(n=60)		
mean	57.7	56.0	60.5	65.9	63.9	26.27	.0001
std. dev.	21.6	24.8	23.2	16.5	17.3		
Doctoral	(n=4,890)	(n=293)	(n=369)	(n=487)	(n=55)		
mean	60.6	50.7	60.6	59.5	62.2	17.19	.0001
std. dev.	20.0	23.4	20.3	19.3	21.1		

Note: When black, non-Hispanic students are removed from the analysis for doctoral institutions, the F-value = 0.64, with a p-value of .588

Finding: At the transfer point, there were no statistical differences found in the distribution of credits earned when the gender of the students was considered. This same finding held when the transfer cohort was separated by institution types.

However, there were statistical differences in credits earned at the transfer point when the overall transfer cohort was separated into different race/ethnicity groups. Further,at doctoral institutions, the distribution of credits earned by black, non-Hispanic transfer students was statistically different than that of the other race/ethnicity groups. At non-doctoral institutions, credit accumulation was significantly different for each of the race/ethnicity groups.

While tests were completed on the mean and standard deviations of credits earned, it is useful, and perhaps more illuminating, to look at quartiles of credits earned per group. Graphs 1-4 on the following pages illustrate the cumulative credits earned by each group of transfer student, and should be referenced when reading the following section.

For the transfer cohort overall, the median number of credits earned prior to transfer was 63. Medians were fairly consistent across gender and race/ethnicity categories, 62-63 credits for men and ranging from 60 for black, non-Hispanic transfer students to 64 for both

Asian/Pacific Islander and American Indian/Alaskan Native transfer students. Differences are found, however, when looking at the "spread," or distribution, of credits earned.

For female students, male students, Hispanic students and white, non-Hispanic students, the distribution of credits earned was very consistent and did not differ significantly. Twenty-five percent of each of these groups earned between 47-50 credits or less. Another 25 percent of the students earned between 47-50 and 63 credits. The next quarter of these students earned between 63 credits and 72-74 credits, with the remaining 25 percent of the students earning above 72-74 credits at the two-year institution.

The distribution of credits earned by black, non-Hispanic students varied from that of the other students, and showed more variability in the pattern of credit attainment. Twenty-five percent of the black, non-Hispanic students earned 36 credits or less, another 25 percent earned between 36 and 60 credits, another 25 percent earned between 60 and 70 credits, and the remaining quarter of the students earned more than 70 credits.

Asian/Pacific Islander and American Indian/Alaskan Native students displayed a distribution of credits that is highly concentrated near the median, with the first quarter of the students having earned 56 credits or less, and the next quarter having earned between 56 and 64 credits. Another twenty-five percent of the students earned between 64 and 73-74 credits, and the remaining quarter of these students earned over 73-74 credits.

Student transfer points are more likely to differ when viewed with respect to receiving institution.

Although there are differences in credit attainment between doctoral and non-doctoral students, gender does not make a difference in credit attainment at either type of institution. (Graphs 1 and 2) However, differences in race/ethnicity did have a distinct effect on the point of transfer.

At doctoral institutions, only the black, non-Hispanic students had a significantly different pattern of credit accumulation prior to transfer. Black, non-Hispanic students were not as likely to earn large numbers of credits prior to transfer to the doctoral institution. One quarter of the black, non-Hispanic students earned 35 credits or less, another quarter earned between 35 and 56 credits. Twenty-five percent of the students earned between 56 and 68 credits and the remaining quarter earned over 68 credits. (Graph 3)

For all other students, 25 percent of the students earned between 46-53 credits or less. Another 25 percent of the students earned between 46-53 credits and 61-64 credits, another 25 percent earned between 62-64 credits and 73-76 credits, and the remaining quarter of the students earned more than 73-76 credits. (Graph 3)

Interestingly, there are also significant differences in credit attainment between male and female black, non-Hispanic students transferring into doctoral institutions. Female students

tend to earn less credits, with one-quarter of them transferring with 27 credits or less. The median number of credits earned is 52.5 for the female students. Male black, non-Hispanic students, however, have a median of 58 credits earned before transfer, with one-quarter of the students earning 39 credits or less.

At non-doctoral institutions, credits earned differed significantly for each race/ethnicity group.

Asian/Pacific Islander students enter into non-doctoral institutions with the most credits earned. One quarter of Asian/Pacific Islander students transferred into the non-doctoral institution with 59 credits or less; that is, three-fourths of the transferring students earned 59 credits or more. Of these three-fourths, one fourth earned between 59 and 66 credits, and another, between 66 and 75 credits. The remaining quarter of the Asian/Pacific Islander students earned 75 credits or more. (Graph 4)

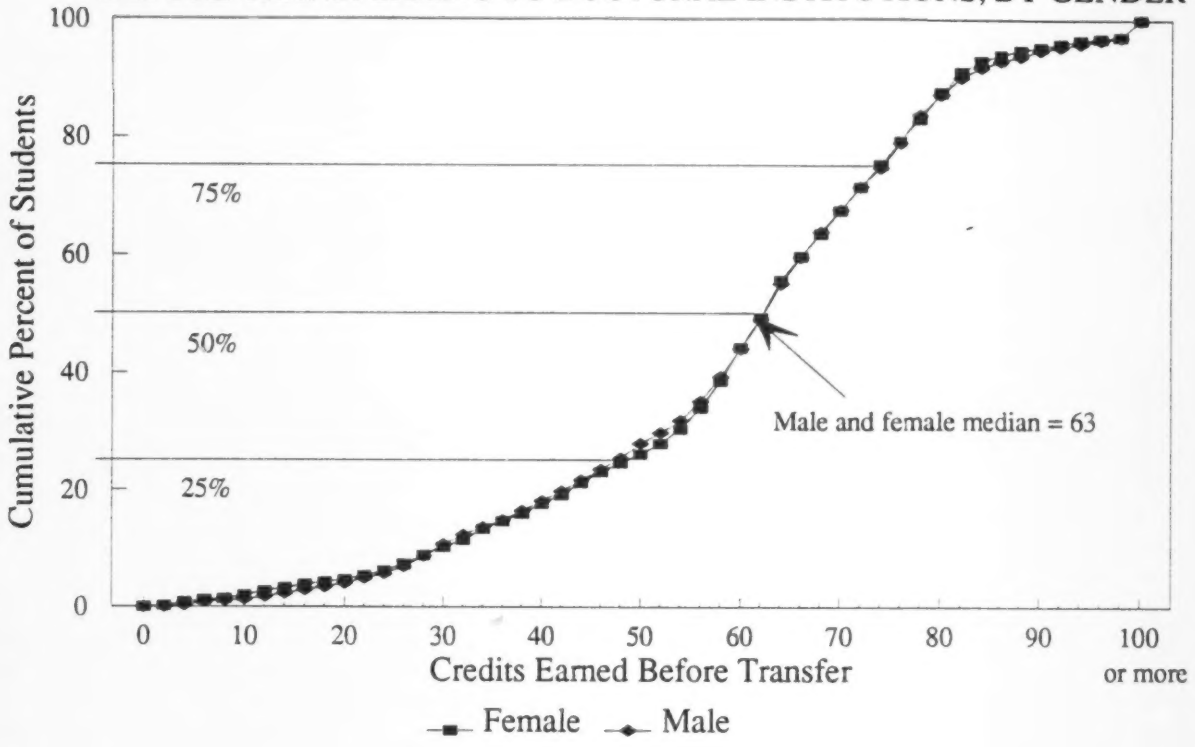
Black, non-Hispanic students tended to earn the least credits before transferring of all the students, as twenty-five percent of the black, non-Hispanic students earned up to 39 credits and another quarter earned between 39 and 62 credits. The third quartile earned from 62 to 70 credits and the remaining quarter earned 70 credits or more. (Graph 4)

One-quarter of the Hispanic students transferred into the non-doctoral institutions with 51 credits or less, and another quarter earned between 61 and 63 credits. An additional twenty-five percent earned between 63 and 74 credits, and the remaining quarter earned 74 credits or more. (Graph 4)

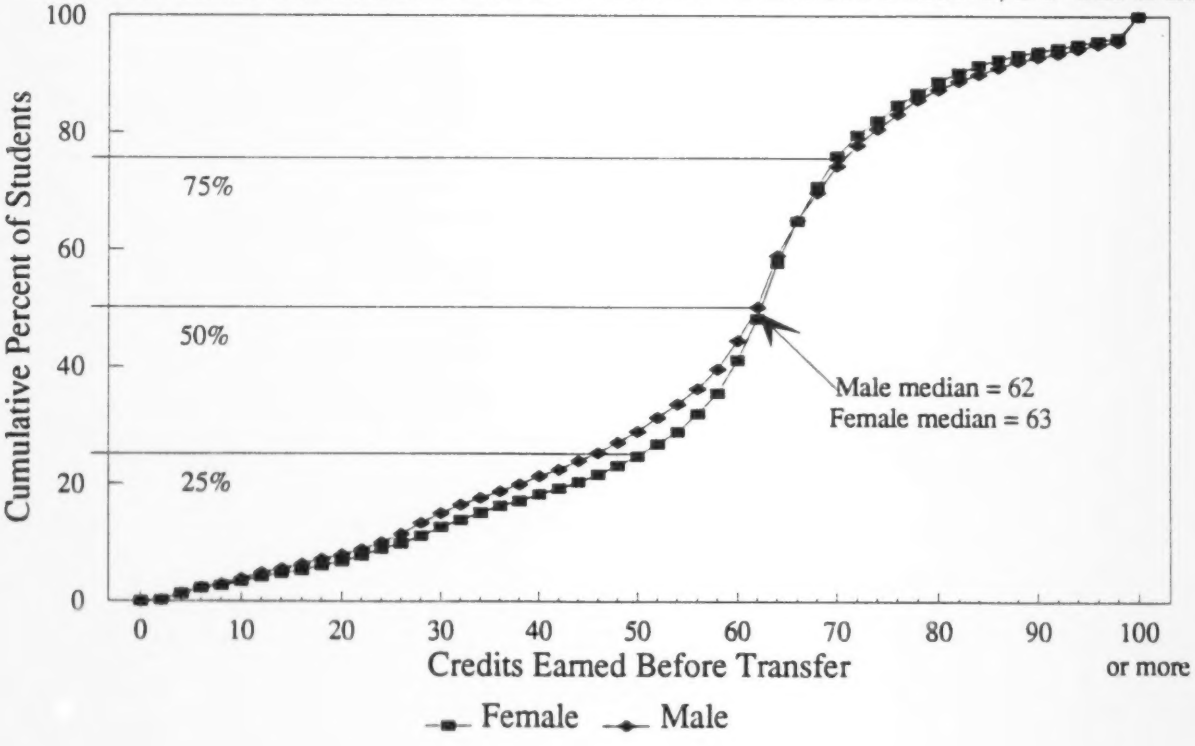
One quarter of the American Indian/Alaskan Native students transferred into the non-doctoral institutions with 56 credits or less, and another quarter earned between 56 and 66 credits. Additionally, twenty-five percent earned between 66 and 73 credits, while the remaining quarter earned 73 credits or more. (Graph 4)

One quarter of the white, non-Hispanic students transferred into the non-doctoral institutions with 47 credits or less, and another quarter earned between 47 and 62 credits. A third quarter earned between 62 and 70 credits. The remaining quarter earned 70 credits or more. (Graph 4)

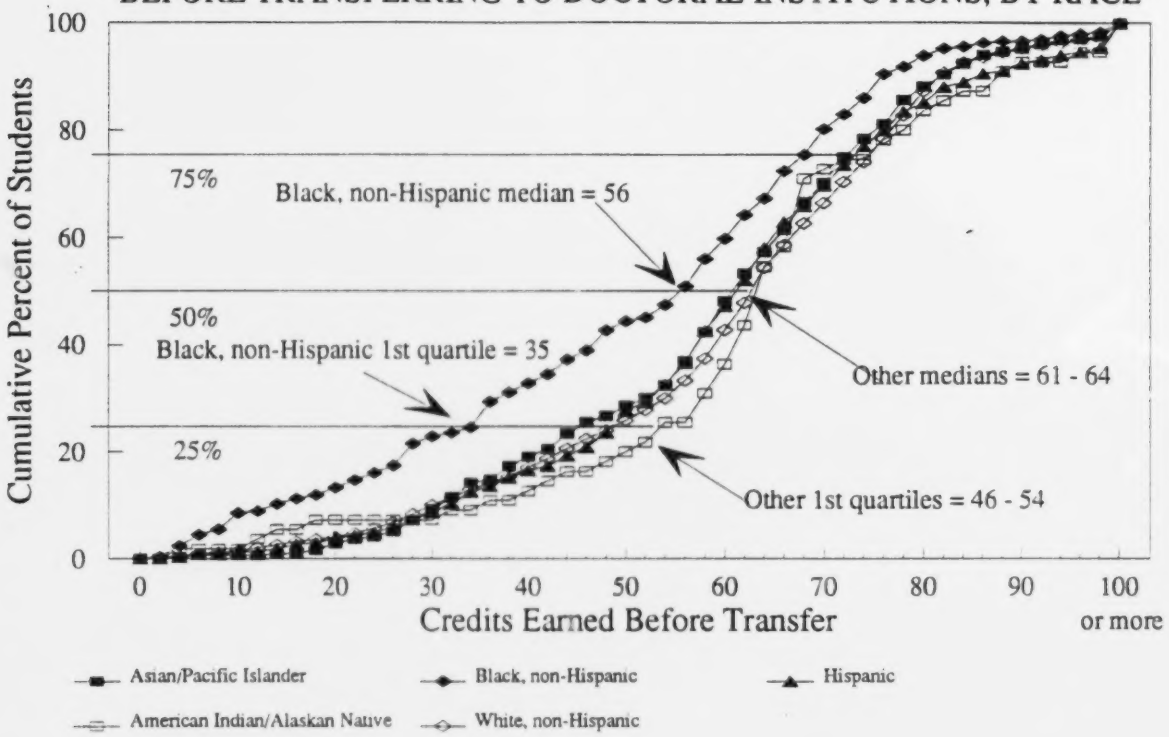
GRAPH 1 - CUMULATIVE PERCENT OF STUDENTS BY CREDITS EARNED BEFORE TRANSFERRING TO DOCTORAL INSTITUTIONS, BY GENDER



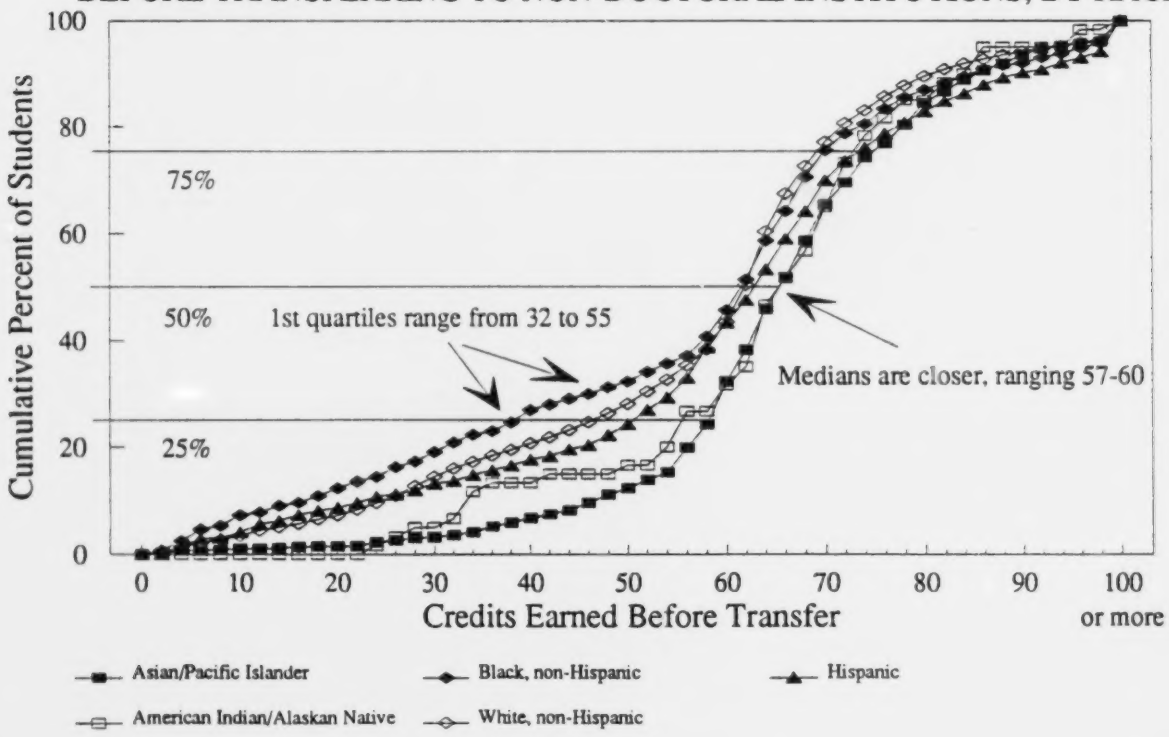
GRAPH 2 - CUMULATIVE PERCENT OF STUDENTS BY CREDITS EARNED BEFORE TRANSFERRING TO NON-DOCTORAL INSTITUTIONS, BY GENDER



GRAPH 3 - CUMULATIVE PERCENT OF STUDENTS BY CREDITS EARNED BEFORE TRANSFERRING TO DOCTORAL INSTITUTIONS, BY RACE



GRAPH 4 - CUMULATIVE PERCENT OF STUDENTS BY CREDITS EARNED BEFORE TRANSFERRING TO NON-DOCTORAL INSTITUTIONS, BY RACE



Hypothesis 5 - There is no difference in the percentage of students who earn an associate degree before transferring, with regard to gender and race/ethnicity.

Table 6
Percent of Transfer Students Earning at Least One Associate Degree Before Transfer, by Gender

	Female	Male	All Students	Chi-Square	p-value
All institutions	40.5%	34.2%	37.4%	47.93	0.001
Non-doctoral	46.6	38.0	42.6	55.21	0.001
Doctoral	27.6	27.4	27.5	0.62	0.74

Table 7
Percent of Transfer Students Earning at Least One Associate Degree Before Transfer, by Race/Ethnicity

	White, non-Hispanic	Black, non-Hispanic	Hispanic	Asian/ Pacific Islander	American Indian/ Alaskan Native	All Students	Chi-Square	p-value
All institutions	39.9%	32.5%	29.5%	24.6%	39.3%	37.4%	115.10	0.001
Non-doctoral	44.9	40.6	31.9	33.6	48.8	42.6	67.20	0.001
Doctoral	30.3	14.7	21.9	13.6	30.2	27.5	77.79	0.001

Finding: Degree attainment of students in the transfer cohort differed by gender overall and at non-doctoral institutions, but not at doctoral institutions. In addition, degree attainment differed significantly when race and ethnic groups were compared at both non-doctoral and doctoral institutions, as well as for the transfer cohort overall.

Overall, female transfer students are more likely than males to have earned an associate degree before transferring. While 40.5% of female transfer students earned at least one degree, just 34.2% of males did. However, for those students who transferred into a doctoral institution, gender makes no difference as to degree attainment; students of both genders are just as likely to earn a degree (around 27%). Female students at non-doctoral institutions, on the other hand, were more likely to earn a degree before transferring (46.6%) than males (38.0%).

White, non-Hispanic and American Indian/Alaskan Native students are more likely to earn a degree before transferring into either doctoral or non-doctoral institutions, than the other races. Of those transferring into doctoral institutions, about 30% of the white, non-Hispanic and American Indian/Alaskan Native students earn at least one associate degree. Students of other races, however, earn degrees at rates of between 13 and 21% (the rates are not statistically different from one another).

Of students transferring into non-doctoral institutions, 44.9% of the white, non-Hispanic students and 48.8% of the American Indian/Alaskan Native students earn at least one associate degree. Students of other races, however, earn degrees at rates of between 31 and 40% (the rates are not statistically different from one another).

On average, a significantly smaller number of students (27.5%) have earned at least one associate degree before transferring into doctoral institutions, as compared with 42.6% of students entering non-doctoral institutions.

Hypothesis 6 - The characteristics of the student (with regard to gender and race/ethnicity) do not make a difference in the number of credits accepted by the four-year institution upon transfer.

Table 8
Credits Accepted by Type of Institution and Gender

	Female	Male	F-value	p-value
All institutions	(n=7,902)	(n=7,245)		
mean	55.0	53.7	18.27	.0001
std. dev.	18.7	19.6		
Non-doctoral	(n=4,888)	(n=4,190)		
mean	56.0	54.4	14.29	.0002
std. dev.	19.2	20.9		
Doctoral	(n=3,014)	(n=3,055)		
mean	53.4	52.6	2.52	.1126
std. dev.	17.8	17.7		

Table 9
Credits Accepted by Type of Institution and Race/Ethnicity

	White, non-Hispanic	Black, non-Hispanic	Hispanic	Asian/ Pacific Islander	American Indian/Alaskan Native	F-value	p-value
All institutions	(n=11,560)	(n=855)	(n=1,484)	(n=1,113)	(n=115)		
mean	54.1	49.5	55.9	58.6	56.7	31.34	.0001
std. dev.	18.8	23.0	20.9	15.8	17.9		
Non-doctoral	(n=6,683)	(n=563)	(n=1,116)	(n=656)	(n=60)		
mean	54.7	51.7	56.5	62.1	59.2	27.19	.0001
std. dev.	19.7	23.7	21.9	14.8	16.0		
Doctoral	(n=4,877)	(n=292)	(n=368)	(n=477)	(n=55)		
mean	53.3	45.2	54.0	53.8	54.0	15.20	.0001
std. dev.	19.5	21.0	17.6	15.9	19.5		

Finding: Differences between groups were found in the distribution of credits accepted by the institution, when gender and race of the students were considered. However, gender was found to make a difference at the non-doctoral institution, only. Race/ethnicity was a significant factor in credits accepted at both types of institutions, mirroring the differences found in patterns of credits earned.

While data were not collected in such a way as to compare for each student the number of "credits earned" with the number of "credits accepted," it was possible to compare the variations across groups of students. Data were grouped by number of credits, i.e. "2 female Hispanic students earned 1 credit before transferring, 4 students earned 2 credits, 1 student earned 3 credits, etc."

Gender, while not a significant issue in credits earned, made a difference at non-doctoral institutions as indicated by the fact that males had fewer credits accepted on average than females. This seems to follow from our findings that males in our sample earned fewer credits, although not significantly fewer credits.

The first quarter of males transferring into non-doctoral institutions had 43 credits or less accepted, with another quarter having 43 to 59 credits accepted. An additional twenty-five

percent of the males had 59-66 credits accepted and the remainder had over 66 credits accepted.

The first quarter of females transferring into non-doctoral institutions had 49 credits or less accepted, with another quarter having 49 to 60 credits accepted. An additional twenty-five percent of the females had 60-66 credits accepted and the remainder had over 66 credits accepted.

Differences in credits accepted by race/ethnicity mirrored those differences found in credits earned. At doctoral institutions, only black, non-Hispanic students had significantly less credits accepted than the others, a function of the fact that they earned less credits. The same pattern holds true for all races at the non-doctoral institutions (each race/ethnic group had a different distribution of credits earned and therefore have a different distribution of credits accepted).

Summary of Findings

(1) A snapshot of a typical transfer cohort shows that it is in some ways similar and some ways different from the populations of students in the affiliated community and four-year colleges to which it pertains.

First, the overall enrollment in a group of community colleges would be likely to include proportionately more female students, more black, non-Hispanic students, and more Hispanic students than would a cohort of transfer students who had earned credits at those colleges.

Second, looking to the other side of the transfer point (the four-year college or university), when the transfer cohorts of doctoral and non-doctoral institutions are combined, a transfer cohort is likely to be distinguished from a class of first-time freshmen (native students) by its race/ethnic distribution, but not by the proportions of male and female students. However, further distinctions are found when the transfer cohort is divided by type of institution.

In a doctoral institution's transfer cohort, black, non-Hispanic and Asian/Pacific Islander students are likely to be represented in smaller proportions than they are to be represented in the first-time freshman class. In a non-doctoral institution's transfer cohort, black, non-Hispanic and Hispanic students are likely to be represented in smaller proportions than they are to be represented in its first-time freshman class.

Gender is also a distinguishing characteristic when the type of institution is considered. The transfer cohort at non-doctoral institutions is likely to have a significantly smaller proportion of female students than the first-time freshman cohort. The opposite finding was documented for male students at non-doctoral institutions.

(2) A student's gender and race/ethnicity both make a difference in their representation in a transfer cohort when the type of institution is also considered. In non-doctoral institutions, female students are represented in greater proportions within a transfer cohort than they are in doctoral institutions. Similarly, both black, non-Hispanic and Hispanic students represent larger proportions of the non-doctoral transfer cohort than they do of the doctoral transfer cohort.

(3) Male and female students tend to transfer at the same point from community colleges, that is after they have earned a median number of credits--62-63. Within a single transfer cohort at either doctoral or non-doctoral institutions, the pattern for males and females is consistent. Between doctoral and non-doctoral institutions, however, there are important differences. The use of the median as the only descriptive statistic can be misleading as to group differences. When the median is used alone to describe the transfer point for example, most race/ethnic groups would look as if they behaved similarly. However, when the mean is used as the indicator of central tendency and the distribution within the student group is the focus of the analysis, important differences are found in the accumulation of credits.

A student's race/ethnicity does make a difference in the transfer point and this is particularly true for black, non-Hispanic students, among whom a larger proportion transfer with fewer credits than other student groups. Females within this group tend to earn fewer credits than males, adding another level of distinction. This pattern of credit accumulation holds for both doctoral and non-doctoral institutions.

Another distinctive pattern is shown by Asian/Pacific Islander students, who enter non-doctoral institutions with a greater number of credits earned than do other race/ethnic groups.

According to these findings, it appears that the typical transfer student (about sixty percent of our cohort) comes to the transfer point with at least enough credits (60 or more) to have accomplished about half of a traditional college baccalaureate degree program. Since we do not have course information, we cannot say whether they have in fact accomplished that work.

(4) A student's gender and race/ethnicity both make a difference in degree attainment prior to transfer. White, non-Hispanic students and American Indian students are more likely to have a degree prior to entry into either a doctoral or a non-doctoral institution. Female students are more likely to earn a degree than male transfer students overall, but when the type of institution is considered, this distinction holds for non-doctoral institutions only.

(5) Both the number of credits earned and the number of credits accepted are related to the student's race/ethnicity. This relationship holds for both doctoral and non-doctoral institution transfer cohorts. A student's gender makes a difference in the median

number credits accepted at non-doctoral institutions only. However, without individual student record data we do not know whether the factor influencing this finding is the number of credits earned per student or the content of the credits accumulated.

Study Limitations

The methodology and data collection for the Transfer Point Study placed certain limitations on the analyses. To assist other researchers considering the development of similar research, we offer a brief description of these limitations.

(1) No information was requested on the content of the courses for which credit was earned or accepted. Without this information, we could not determine why some credit was transferred and some was not. There is indication in the literature about state and institutional policy regarding the acceptance of academic versus vocational credit and the tolerance of one type of institution for vocational credit transfer. It was beyond the scope of this study to examine whether that policy was affecting the results for our cohort.

(2) No information was collected on the reasons for students' transfer decisions. Therefore, this study could not examine the reasons behind the transfer point of a particular group of students and certainly not individual students.

(3) One lesson learned in the application of the data collection forms and in the process of the study was that data on transfer students is not stored for easy selection and manipulation. Institutions vary widely as to where the data is located and which items are maintained over a period of time. When the cohort was small, most institutions found they were able to provide complete information for the cohort selected. In other cases, however, it was discovered that information about credits accepted was either not available at the same for all students (due to intermittent evaluation of records), or that some items simply could not be obtained because they were not held by the institution in its written or data records.

(4) Because the data were collected by category of number of credits earned and accepted and not by individual student, we are not able to control for "credits earned" when analyzing the "credits accepted" for each group, for example, we were not able to determine how many credits were accepted for students earning 20 credits before transfer.

(5) The data collection instrument did not allow us to identify the community college from which students transferred. Therefore, when we compared demographic profiles of our transfer cohort and the community college population, we had to use enrollment from all community colleges from within the state (because individual community colleges were not identified).

Concluding Questions

The findings of this study raise a number of questions about curriculum, student goals, and student characteristics which bear further investigation:

(1) What are students studying that leads them through different patterns of accumulation of credits?

(2) What is it in the public higher education system that promotes or supports early transfer for some and not for others? Is it the distribution of programs among institutions, articulation agreements, institutional characteristics such as outreach and transfer support?

(3) Why do characteristics like gender and race/ethnicity make a difference in patterns of degree and credit attainment? What factors are contributing to the difference these characteristics make?

(4) Why do some students transfer "earlier" or "later" than others? What do they gain? What do they lose -- either way?

(5) Are students taking advantage of the opportunities they have to transfer? To earn a degree, if that is their goal?

(6) What do four-year colleges and universities know or want to know about their transfer students?

Appendix

Participating Institutions

Arizona
- University of Arizona *

California
- California State University, Long Beach
- California State University, Los Angeles
- University of California, Davis *

Florida
- Florida A & M University

Illinois
- Illinois State University *
- Western Illinois University

Maryland
- Frostburg State University
- Towson State University
- University of Maryland, College Park *

Michigan
- Ferris State University
- University of Michigan, Dearborn

New Jersey
- Montclair State College

New York
- City University of New York, College of Staten Island
- State University College at Brockport
- State University College at Potsdam
- State University of New York, Albany *

North Carolina
- North Carolina State University *
- University of North Carolina at Asheville
- Winston-Salem State University

Ohio
- University of Cincinnati *
- Youngstown State University

Pennsylvania
- Bloomsburg University of Pennsylvania
- East Stroudsburg University of Pennsylvania
- Lock Haven University of Pennsylvania

Texas
- Corpus Christi State University

East Texas State University *
University of Texas, El Paso

Washington
Central Washington University
University of Washington *

* denotes doctoral institution

Procedures
for the completion of the
National Center for Academic Achievement and Transfer
Survey of Transfer Student Progress

STEP 1

Create a list of the students to be included in the cohort for study. Students in the transfer cohort should include those who meet the following conditions:

a) entered your institution for the first time in the fall of 1991,

b) whose records indicate that the last college attended was a public community, technical, or junior college within the state in which your institution is located (see enclosed list of two-year, public colleges),

c) has transferred at least one credit from a two-year public college into your institution, and

d) has not transferred into your institution any credits from another four-year institution.

STEP 2

Gather the community college transcripts for this cohort of students, as well as records indicating credits transferred.

STEP 3

Fill in the "ALL STUDENTS IN THE TRANSFER COHORT" form using the entire cohort.

Step 3.A Fill in Table I, titled "SEMESTER CREDITS EARNED AT ALL TWO-YEAR COLLEGES."

Write in the total number of students in the cohort (see Step 1 above) in the "All Students" box at the bottom of the table.

For each student, determine the TOTAL number of SEMESTER credits earned at ALL public two-year institutions previously attended. To calculate semester credits from quarter credits, use the following formula: quarter credits x 2/3 = semester credits

Please be alert to credits a student may have transferred from one 2-year college to another and avoid counting these twice.

Once you have determined the number of community college semester credits earned by each student in the cohort, please fill in the frequency table, noting the number of students in the cohort who earned 1 credit, the number of students in the cohort who earned 2 credits, and so forth.

There may be students for whom you are unable to determine the number of community college semester credits earned. Please indicate the number of such students in the "Don't Know" box on the frequency table.

Please ensure that the "All Students" number equals the sum of students entered in the frequency table.

Step 3.B Fill in Table II, titled "TWO-YEAR COLLEGE SEMESTER CREDITS ACCEPTED BY YOUR INSTITUTION."

Write in the total number of students in the cohort (see Step 1 above) in the "All Students" box at the bottom of the table. This number should be the same as the one in the "All Students" box in Table I.

For each student, determine the total number of SEMESTER credits from the two-year colleges that were accepted by your institution for transfer. To calculate semester credits from quarter credits, use the following formula: quarter credits x 2/3 = semester credits

Once you have determined the number of community college semester credits accepted by your institution for each student in the cohort, please fill in the frequency table, noting the number of students in the cohort with 1 credit accepted, the number of students in the cohort with 2 credits accepted, and so forth.

There may be students for whom you are unable to determine the number of community college semester credits accepted. Please indicate the number of such students in the "Don't Know" box on the frequency table.

Please ensure that the "All Students" number equals the sum of students entered in the frequency table.

Step 3.C Fill in Table III, titled "ASSOCIATE DEGREES EARNED."

Write in the total number of students in the cohort (see Step 1 above) in the "All Students" box at the bottom of the table. This number should be the same as the one in the "All Students" box in Table I.

For each student, determine if any associate degree was earned at a two-year college.

Once you have determined the associate degree status of each student in the cohort, please fill in the frequency table, noting the number of students in the cohort who did not earn an associate degree, the number of students in the cohort who earned an associate degree, and the number of students who earned two or more associate degrees.

There may be students for whom you are unable to determine degree attainment at the community college. Please indicate the number of such students in the "Don't Know" box on the frequency table.

Please ensure that the "All Students" number equals the sum of students entered in the frequency table.

STEP 4

Determine which of the students in the transfer cohort are American Indian/Alaskan Native by the following definition:

a person having origins in any of the original peoples of North America or who maintains cultural identification through tribal affiliation or community recognition.

Step 4.A

Determine which of these students are male.

Fill out the form titled "MALE AMERICAN INDIAN/ALASKAN NATIVE STUDENTS IN THE TRANSFER COHORT" following the procedures outlined in STEP 3, using the number of students determined to be American Indian/Alaskan Native and male as the "All Students" number.

Step 4.B

Determine which of these students are female.

Fill out the form titled "FEMALE AMERICAN INDIAN/ALASKAN NATIVE STUDENTS IN THE TRANSFER COHORT" following the procedures outlined in STEP 3, using the number of students determined to be American Indian/Alaskan Native and female as the "All Students" number.

STEP 5

Determine which of the students in the transfer cohort are Asian/Pacific Islander by the following definition:

a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or Pacific Islands. This includes people from China, Japan, Korea, the Philippine Islands, Samoa, India, and Vietnam.

Step 5.A

Determine which of these students are male.

Fill out the form titled "MALE ASIAN/PACIFIC ISLANDER STUDENTS IN THE TRANSFER COHORT" following the procedures outlined in STEP 3, using the number of students determined to be Asian/Pacific Islander and male as the "All Students" number.

Step 5.B

Determine which of these students are female.

Fill out the form titled "FEMALE ASIAN/PACIFIC ISLANDER STUDENTS IN THE TRANSFER COHORT" following the procedures outlined in STEP 3, using the number of students determined to be Asian/Pacific Islander and female as the "All Students" number.

STEP 6

Determine which of the students in the transfer cohort are black, non-Hispanic by the following definition:

a person having origins in any of the black racial groups of Africa (except those of Hispanic origin).

Step 6.A

Determine which of these students are male.

Fill out the form titled "MALE BLACK, NON-HISPANIC STUDENTS IN THE TRANSFER COHORT" following the procedures outlined in STEP 3, using the number of students determined to be black, non-Hispanic and male as the "All Students" number.

Step 6.B

Determine which of these students are female.

Fill out the form titled "FEMALE BLACK, NON-HISPANIC STUDENTS IN THE TRANSFER COHORT" following the procedures outlined in STEP 3, using the number of students determined to be black, non-Hispanic and female as the "All Students" number.

STEP 7

Determine which of the students in the transfer cohort are Hispanic by the following definition:

a person of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race.

Step 7.A

Determine which of these students are male.

Fill out the form titled "MALE HISPANIC STUDENTS IN THE TRANSFER COHORT" following the procedures outlined in STEP 3, using the number of students determined to be Hispanic and male as the "All Students" number.

Step 7.B

Determine which of these students are female.

Fill out the form titled "FEMALE HISPANIC STUDENTS IN THE TRANSFER COHORT" following the procedures outlined in STEP 3, using the number of students determined to be Hispanic and female as the "All Students" number.

STEP 8

Determine which of the students in the transfer cohort are white, non-Hispanic by the following definition:

a person having origins in any of the original peoples of Europe, North Africa, or the Middle East.

Step 8.A

Determine which of these students are male.

Fill out the form titled "MALE WHITE, NON-HISPANIC STUDENTS IN THE TRANSFER COHORT" following the procedures outlined in STEP 3, using the number of students determined to be white, non-Hispanic and male as the "All Students" number.

Step 8.B

Determine which of these students are female.

Fill out the form titled "FEMALE WHITE, NON-HISPANIC STUDENTS IN THE TRANSFER COHORT" following the procedures outlined in STEP 3, using the number of students determined to be white, non-Hispanic and female as the "All Students" number.

NOTE

If you would like to submit the data for your institution in a text file format on a diskette please call Laura Stapleton in the AASCU Office of Association Research at 202-293-7070. You will be supplied with a diskette and documentation as to how to format your text file.

Sample Data Collection Form Institution Name:_____

FEMALE HISPANIC STUDENTS IN THE TRANSFER COHORT *

I. SEMESTER CREDITS EARNED AT TWO-YEAR COLLEGES PRIOR TO TRANSFER

Credits Earned	Number of Students	Credits Earned	Number of Students	Credits Earned	Number of Students	Credits Earned	Number of Students
1		26		51		76	
2		27		52		77	
3		28		53		78	
4		29		54		79	
5		30		55		80	
6		31		56		81	
7		32		57		82	
8		33		58		83	
9		34		59		84	
10		35		60		85	
11		36		61		86	
12		37		62		87	
13		38		63		88	
14		39		64		89	
15		40		65		90	
16		41		66		91	
17		42		67		92	
18		43		68		93	
19		44		69		94	
20		45		70		95	
21		46		71		96	
22		47		72		97	
23		48		73		98	
24		49		74		99	
25		50		75		100 or more	
						Don't Know	
						All Students	

* PLEASE SEE STEP 1 IN THE PROCEDURES FOR INSTRUCTIONS ON WHOM TO INCLUDE IN THE COHORT

FEMALE HISPANIC
STUDENTS IN THE TRANSFER COHORT *

II. TWO-YEAR COLLEGE SEMESTER CREDITS ACCEPTED BY YOUR INSTITUTION

Credits Earned	Number of Students	Credits Earned	Number of Students	Credits Earned	Number of Students	Credits Earned	Number of Students
1		26		51		76	
2		27		52		77	
3		28		53		78	
4		29		54		79	
5		30		55		80	
6		31		56		81	
7		32		57		82	
8		33		58		83	
9		34		59		84	
10		35		60		85	
11		36		61		86	
12		37		62		87	
13		38		63		88	
14		39		64		89	
15		40		65		90	
16		41		66		91	
17		42		67		92	
18		43		68		93	
19		44		69		94	
20		45		70		95	
21		46		71		96	
22		47		72		97	
23		48		73		98	
24		49		74		99	
25		50		75		100 or more	
						Don't Know	
						All Students	

III. ASSOCIATE DEGREES EARNED

Associate Degree Earned	Number of Students
No Associate Degree Earned	
Associate Degree Earned	
Two or More Associate Degrees Earned	
Don't Know	
All Students	

* PLEASE SEE STEP 1 IN THE PROCEDURES FOR INSTRUCTIONS ON WHOM TO INCLUDE IN THE COHORT

Supplementary Tables

Distribution of Transfer Students Within Quartiles by Number of Credits Earned

	Number	Missing Data	Data Provided	Quartiles of Credits Earned				Mean	Std. Dev.
				1st 25%	2nd 25%	3rd 25%	4th 25%		
All	15,278	174	15,104 (N per quartile=3776)	1-48.5	48.5-63	63-72	72 or more	59.2	21.2
Male	7,298	80	7,218 (N per quartile=1804.5)	1-47	47-63	63-72	72 or more	58.9	21.6
Female	7,980	94	7,886 (N per quartile=1971.5)	1-50	50-63	63-72	72 or more	59.4	20.8
White, non-Hispanic	11,663	151	11,512 (N per quartile=2878)	1-48	48-63	63-72	72 or more	58.9	21.0
Black, non-Hispanic	861	7	854 (N per quartile=213.5)	1-36	36-60	60-70	70 or more	54.2	24.5
Hispanic	1,492	10	1,482 (N per quartile=370.5)	3-50	50-63	63-74	74 or more	60.5	22.5
Asian/Pacific Islander	1,147	6	1,141 (N per quartile=285.25)	1-56	56-64	64-74	74 or more	63.1	18.0
American Indian/Alaskan Native	115	0	115 (N per quartile=28.75)	4-56	56-64	64-73	73 or more	63.1	19.1
Students who Transfer into Doctoral Institutions	6,101	7	6,094 (N per quartile=1523.5)	2-48	48-63	63-74	74 or more	60.1	20.3
Students who Transfer into Non-doctoral Institutions	9,177	167	9,010 (N per quartile=2252.5)	1-49	49-63	63-70	70 or more	58.6	21.8

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Distribution of Transfer Students Within Quartiles by Number of Credits Accepted by Receiving Institution

	Number	Missing Data	Data Provided	Quartiles of Credits Accepted				Mean	Std. Dev.
				1st 25%	2nd 25%	3rd 25%	4th 25%		
All	15,278	131	15,147 (N per quartile=3786.75)	1-44	44-60	60-65	65 or more	54.4	19.2
Male	7,298	53	7,245 (N per quartile=1811.25)	1-43	43-59	59-65	65 or more	53.7	19.6
Female	7,980	78	7,902 (N per quartile=1975.5)	1-47	47-60	60-65	65 or more	55.0	18.7
White, non-Hispanic	11,663	103	11,560 (N per quartile=2890)	1-44	44-59	59-64	64 or more	54.1	18.8
Black, non-Hispanic	861	6	855 (N per quartile=213.75)	1-32	32-57	57-64	64 or more	49.5	23.0
Hispanic	1,492	8	1,484 (N per quartile=371)	1-47	47-60	60-70	70 or more	55.9	20.9
Asian/Pacific Islander	1,147	14	1,133 (N per quartile=283.25)	1-55	55-60	60-70	70 or more	58.6	15.8
American Indian/Alaskan Native	115	0	115 (N per quartile=28.75)	4-49	49-59	59-67	67 or more	56.7	17.9
Students who Transfer into Doctoral Institutions	6,101	32	6,069 (N per quartile=1517.5)	1-42	42-59	59-64	64 or more	53.0	17.8
Students who Transfer into Non-doctoral Institutions	9,177	99	9,078 (N per quartile=2269.5)	1-46	46-60	60-66	66 or more	55.3	20.0

Distribution of Transfer Students by Categories of Credits Earned

	Number in Cohort	Missing Data	Data Provided	1-6 credits	7-12 credits	13-24 credits	25-36 credits	37-48 credits	49-60 credits	61-72 credits	73-84 credits	85-96 credits	97 or more credits
All	15,278	174	15,104	1.8 % (n=273)	1.8 % (n=274)	4.4% (n=669)	8.3 % (n=1252)	8.7 % (n=1308)	18.3 % (n=2758)	32.7 % (n=4932)	15.6 % (n=2355)	4.5 % (n=679)	4.0 % (n=604)
Male	7,298	80	7,218	1.7 % (n=125)	1.8 % (n=132)	4.7 % (n=336)	8.9 % (n=641)	9.3 % (n=670)	17.9 % (n=1292)	31.0 % (n=2234)	15.6 % (n=1123)	5.0 % (n=361)	4.2 % (n=304)
Female	7,980	94	7,886	1.9 % (n=148)	1.8 % (n=142)	4.2 % (n=333)	7.7 % (n=611)	8.1 % (n=638)	18.6 % (n=1466)	34.2 % (n=2698)	15.6 % (n=1232)	4.0 % (n=318)	3.8 % (n=300)
White, non-Hispanic	11,663	151	11,512	1.6 % (n=189)	1.8 % (n=208)	4.5 % (n=513)	8.7 % (n=998)	8.8 % (n=1011)	17.8 % (n=2044)	33.2 % (n=3822)	15.9 % (n=1833)	4.1 % (n=469)	3.7 % (n=425)
Black, non-Hispanic	861	7	854	4.6 % (n=39)	3.6 % (n=31)	6.8 % (n=58)	10.2 % (n=87)	10.0 % (n=85)	15.3 % (n=131)	29.7 % (n=254)	11.4 % (n=97)	4.3 % (n=37)	4.1 % (n=35)
Hispanic	1,492	10	1,482	2.4 % (n=36)	2.2 % (n=32)	4.7 % (n=70)	5.9 % (n=87)	7.4 % (n=110)	21.7 % (n=321)	29.4 % (n=435)	13.3 % (n=197)	6.5 % (n=96)	6.6 % (n=98)
Asian/Pacific Islander	1,147	6	1,141	0.7 % (n=8)	0.2 % (n=2)	2.2 % (n=25)	6.2 % (n=71)	8.5 % (n=97)	21.2 % (n=242)	32.9 % (n=375)	18.5 % (n=211)	6.0 % (n=68)	3.7 % (n=42)
American Indian/Alaskan Native	115	0	115	0.9 % (n=1)	0.9 % (n=1)	2.6 % (n=3)	7.8 % (n=9)	4.3 % (n=5)	17.4 % (n=20)	40.0 % (n=46)	14.8 % (n=17)	7.8 % (n=9)	3.5 % (n=4)
Students who Transfer into Doctoral Institutions	6,101	7	6,094	1.1 % (n=64)	1.2 % (n=73)	3.7 % (n=228)	8.8 % (n=537)	10.2 % (n=624)	19.1 % (n=1165)	27.4 % (n=1670)	20.9 % (n=1274)	4.3 % (n=259)	3.3 % (n=200)
Students who Transfer into Non-doctoral Institutions	9,177	167	9,010	2.3 % (n=209)	2.2 % (n=201)	4.9 % (n=441)	7.9 % (n=715)	7.6 % (n=684)	17.7 % (n=1593)	36.2 % (n=3262)	12.0 % (n=1081)	4.7 % (n=420)	4.5 % (n=404)

Distribution of Transfer Students by Categories of Credits Accepted by Receiving Institution

	Number in Cohort	Missing Data	Data Provided	1-6 credits	7-12 credits	13-24 credits	25-36 credits	37-48 credits	49-60 credits	61-72 credits	73-84 credits	85-96 credits	97 or more credits
All	15,278	131	15,147	1.9 % (n=289)	2.1 % (n=322)	5.4% (n=811)	9.6 % (n=1447)	9.4 % (n=1425)	28.3 % (n=4289)	34.3 % (n=5196)	5.2 % (n=784)	2.3 % (n=351)	1.5 % (n=233)
Male	7,298	53	7,245	2.0 % (n=144)	2.2 % (n=158)	5.9 % (n=431)	10.1 % (n=729)	10.4 % (n=757)	27.6 % (n=2001)	32.8 % (n=2373)	5.1 % (n=366)	2.2 % (n=161)	1.7 % (n=125)
Female	7,980	78	7,902	1.8 % (n=145)	2.1 % (n=164)	4.8 % (n=380)	9.1 % (n=718)	8.5 % (n=668)	29.0 % (n=2288)	35.7 % (n=2823)	5.3 % (n=418)	2.4 % (n=190)	1.4 % (n=108)
White, non-Hispanic	11,663	103	11,560	1.6 % (n=185)	2.1 % (n=244)	5.3 % (n=613)	10.1 % (n=1170)	9.6 % (n=1104)	29.0 % (n=3349)	33.8 % (n=3909)	4.9 % (n=564)	2.1 % (n=242)	1.6 % (n=180)
Black, non-Hispanic	861	6	855	6.1 % (n=52)	3.5 % (n=30)	9.2 % (n=79)	10.4 % (n=89)	9.5 % (n=81)	19.9 % (n=170)	33.2 % (n=284)	4.0 % (n=34)	2.6 % (n=22)	1.6 % (n=14)
Hispanic	1,492	8	1,484	2.9 % (n=43)	2.7 % (n=40)	5.6 % (n=83)	6.6 % (n=98)	8.8 % (n=130)	25.6 % (n=380)	33.8 % (n=502)	8.2 % (n=122)	3.8 % (n=57)	2.0 % (n=29)
Asian/Pacific Islander	1,147	14	1,133	0.7 % (n=8)	0.6 % (n=7)	2.7 % (n=31)	7.1 % (n=80)	8.7 % (n=99)	31.4 % (n=356)	40.8 % (n=462)	4.8 % (n=54)	2.5 % (n=28)	0.7 % (n=8)
American Indian/Alaskan Native	115	0	115	0.9 % (n=1)	0.9 % (n=1)	4.3 % (n=5)	8.7 % (n=10)	9.6 % (n=11)	29.6 % (n=34)	33.9 % (n=39)	8.7 % (n=10)	1.7 % (n=2)	1.7 % (n=2)
Students who Transfer into Doctoral Institutions	6,101	32	6,069	1.4 % (n=88)	1.8 % (n=111)	5.3 % (n=320)	11.1 % (n=675)	11.0 % (n=666)	31.6 % (n=1918)	32.1 % (n=1946)	3.8 % (n=228)	1.3 % (n=77)	0.7 % (n=40)
Students who Transfer into Non-doctoral Institutions	9,177	99	9,078	2.2 % (n=201)	2.3 % (n=211)	5.4 % (n=491)	8.5 % (n=772)	8.4 % (n=759)	26.1 % (n=2371)	35.8 % (n=3250)	6.1 % (n=556)	3.0 % (n=274)	2.1 % (n=193)

Distribution of Transfer Students by Degree Earned Status

	Number in Cohort	Missing Data	Data Provided	No Earned Degree	One Associate Degree	More Than One Associate Degree
All	*15,278*	4,078	11,200	62.6 % (n=7008)	37.3 % (n=4176)	0.1 % (n=16)
Male	7,298	1,891	5,407	65.8 % (n=3560)	34.0 % (n=1839)	0.2 % (n=8)
Female	7,980	2,187	5,793	59.5 % (n=3448)	40.3 % (n=2337)	0.1 % (n=8)
White, non-Hispanic	11,663	3,025	8,638	60.2 % (n=5196)	39.7 % (n=3429)	0.2 % (n=13)
Black, non-Hispanic	861	184	677	67.5 % (n=457)	32.4 % (n=219)	0.2 % (n=1)
Hispanic	1,492	395	1,097	70.5 % (n=773)	29.5 % (n=324)	0.0 % (n=0)
Asian/Pacific Islander	1,147	443	704	75.4 % (n=531)	24.4 % (n=172)	0.1 % (n=1)
American Indian/Alaskan Native	115	31	84	60.7 % (n=51	38.1 % (n=32)	1.2 % (n=1)
Students who Transfer into Doctoral Institutions	6,101	2277	3,824	72.5 % (n=2772)	27.4 % (n=1046)	0.2 % (n=6)
Students who Transfer into Non-doctoral Institutions	9,177	1801	7,376	57.4 % (n=4236)	42.4 % (n=3130)	0.1 % (n=10)